Amendments to the Claims

Add new claims 4-34.

The following listing of claims will replace all prior versions
and listings of claims in the application:

1. (original) A process for calibrating an electronic sign comprising the steps of:

    a.   using an imaging device to take an image of an electronic sign; and,

    b.   using that image to determine the control values needed to bring the sign into uniformity.

2. (original) A process of an imaging system to capture a detailed image of an electronic display comprising the steps of:

    a. at least one image to contain enough detail and resolution that each pixel can be identified and their individual luminance value can be determined for each color;

    b. once the individual luminance of each pixel is determined, this value can be inputted into an algorithm, which will determine the correct amount of adjustment necessary to increase or decease the luminance of the pixel;

    c. using a properly programmed personal computer, the determination of luminance values; and,

    d. resulting adjustment values can be automated into said electronic display.

3. (original) The process of claim 2, wherein said algorithm comprises:

a.

$$nChange = \frac{(fExpectedValue \sim fPixelValue)}{(fExpectedValue)} * \frac{1.0}{fPercentChangePerCalValue}$$

and;

b. nChange - the amount the calibration control value should change for this color on this pixel; this is the output of the formula;

c. fExpectedValue - the value this color on all pixels is to be adjusted to; this value is either user supplied or the average value of the image data from the camera;

d. fPixelValue - the current pixel value for this color; this value is calculated from the camera image data from as stated above; and,

e. fPercentChangePerCalValue - the factor which converts a percentage change needed to a calibration control value; this value is sign dependent and is entered as a user supplied parameter.

4.   (new)   The process of claim 1, wherein the electronic sign is a monochrome display.

5.   (new)   The process of claim 1, wherein the electronic sign is a multiple color display.

6.   (new)   The process of claim 5, wherein the electronic sign has red, green and blue color capability.

7.   (new)   The process of claim 1, wherein the imaging device is a digital camera.

8.   (new)   The process of claim 5, wherein the electronic sign is a multiple color display and the imaging device distinguishes the multiple colors of the multiple color display of the electronic sign.

9.   (new)   The process of claim 8, wherein the imaging device includes color filters to distinguish the multiple colors.

10.   (new)   The process of claim 1, wherein the imaging device is a video camera.

11.   (new)   The process of claim 10, wherein the video camera is a monochrome video camera.

12.   (new)   The process of claim 10, wherein the video camera is a multiple color video camera.

13.   (new)   The process of claim 1, wherein the imaging device includes a charge coupled device (CCD).

14.   (new)   The process of claim 13, wherein the charge coupled device (CCD) includes a plurality of sensors, and wherein the sensors of CCDs are arranged in rows and columns.

15.   (new)   The process of claim 14, wherein the electronic sign includes a plurality of pixels and wherein sensors in the plurality of sensors in the imaging device exceeds pixels in the plurality of pixels in the electronic sign.

16.   (new)   The process of claim 1, wherein the imaging device includes a lense.

17. (new) The process of claim 15, wherein each of the pixels of the plurality of pixels of the electronic sign are mapped to at least one sensor of the plurality of sensors of the imaging device.

18. (new) The process of claim 17, wherein each of the pixels of the plurality of pixels of the electronic sign are mapped to multiple sensors of the plurality of sensors of the imaging device.

19. (new) The process of claim 18, wherein the electronic sign includes four corners, which four corners mark the image for mapping the each of the pixels of the plurality of pixels of the electronic sign so as to assign corresponding multiple sensors of the imaging device.

20. (new) The process of claim 19, further comprising the step of dividing the pixels between the four corners into rows and columns corresponding to pixel rows and columns of the electronic sign.

21. (new) The process of claim 19, further comprising the step of dividing the plurality of corresponding multiple sensors assigned to each pixel of the electronic sign between the four corners into rows and columns corresponding to pixel rows and columns of the electronic sign.

22. (new) The process of claim 19, further comprising the step of providing a grid of a small number of points on the electronic sign to correct the mapping for distortions.

23. (new) The process of claim 22, wherein the distortions are caused by the lense of the imaging device.

24. (new) The process of claim 22, wherein the distortions are caused by the angle of the imaging device to the electronic sign.

25. (new) The process of claim 22, wherein the small number of points in the grid is from 16 to 20.

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26. (new) The process of claim 18, wherein the multiple sensors of the imaging device corresponding to a pixel of the sign are defined as an image pixel further comprising the step of averaging the value of the multiple sensors of an image pixel.

27. (new) The process of claim 26, wherein the electronic sign is a red, green, blue electronic sign and the multiple sensors corresponding to each pixel of the sign, defining each image pixel, are averaged for red, green and blue, so as to determine a red, a green, and a blue value for each sign pixel.

28. (new) The process of claim 27, wherein a difference between the determined value and a desired value is calculated for each sign pixel for red, green, and blue.

29. (new) The process of claim 28, wherein the calculated differences are used to readjust and control each sign pixel for red, green, and blue.

30. (new) The process of claim 29, wherein a statistical characterization of electronic sign is determined.

31. (new) The process of claim 30, wherein the statistical characterization of the electronic sign includes a mean, a variance, a minimum, and a maximum for the calculated differences for each sign pixel for red, green, and blue.

32. (new) The process of claim 31, wherein iterative repetition is continued until a desired statistical characterization is reached, which desired statistical characterization is indicative of acceptable uniformity.

33. (new) The process of claim 1, wherein the device is a camera having a removable storage medium, which removable storage medium, including the image of the electronic sign, is transferred to a personal computer for processing.

34. (new) The process of claim 1, wherein the device is connected directly to a personal computer, such that the image is transferred to the personal computer for determining the control values.